PROPOSED PLAN

Tex Tin Corporation Superfund Site
Operable Unit No. 3, Residential Property
LaMarque, Texas

THE PURPOSE OF THIS PROPOSED PLAN IS TO:

- Present summary results of the United States Environmental Protection Agency's (EPA) Removal Action conducted at the residential properties of LaMarque, Texas, referred to as Operable Unit (OU) No. 3 of the Tex Tin Superfund site;

- Recommend that no further remedial action is necessary to protect human health and the environment at the residential properties of OU No. 3;

- Identify EPA's rationale and information for recommending no further remedial action for the residential properties of OU No. 3;

- Solicit public review and comment on the proposed no further action recommendation as well as on information contained in the Administrative Record file, which includes the Supplemental Remedial Investigation Report, On-Scene Coordinator's report, and other site reports and documents; and

- Provide information on how the public can be involved in the site decision process for the Tex Tin Site.

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan identifies EPA's recommendation that no further action is necessary for the residential properties of LaMarque, Texas, Operable Unit (OU) No. 3 of the Tex Tin Superfund site. This Plan includes summaries of the Supplemental Remedial Investigation (SRI) Report and draft Baseline Risk Assessment that were used in the decision to conduct the Time Critical Removal action to address contamination identified in the residential properties of La Marque. This Plan furthermore summarizes the results of the removal action activities conducted by EPA from March 1999 through June 1999. This Proposed Plan is being issued by the U.S. Environmental Protection Agency (EPA) Region 6 as the lead agency. The Texas Natural Resource Conservation Commission (TNRCC) is serving as the support agency for this site. EPA, in consultation with TNRCC, will make the final decision on the recommendation for no further action after reviewing and considering all the information and comments received during the 30-day public comment period. Based on new information and public comments received during the public comment period, EPA, in consultation with TNRCC, may modify or change the no further action recommendation for OU No. 3. Therefore, the public is encouraged to participate in the decision making process and to review the Administrative Record for the site and to provide comments on site documents.

EPA is issuing this Proposed Plan in accordance with and as part of its public participation responsibilities under CERCLA §117 and the National Contingency Plan (NCP), 40 C.F.R. §300, §300.430(f)(3) and 40 C.F.R. Part 300, Subpart I. The recommendations set forth in this Proposed Plan are based on information and documents contained in the **Administrative Record** (AR) file for the Site. Detailed information regarding EPA's removal action is presented in the **Removal Funded Report (RFR) for Tex Tin Corp. Removal dated July 30, 1999** and other documents found in the AR.

In this Proposed Plan, the United States Environmental Protection Agency (EPA) presents the basis for recommending that no further action is warranted for Operable Unit No. 3 (OU No. 3 or residential properties) of the Tex Tin Corporation Superfund Site (Site). EPA has conducted its activities in connection with this Site in accordance with the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), 42 U.S.C. § 9601 et seq.**, and the NCP, 40 C.F.R. Part 300. This Proposed Plan pertains only to OU No. 3 and not to the other **Operable Units** (OUs 1, 2, and 4) for the Site. OU No.1 refers to the Tex Tin Corporation smelter property, approximately 140 acres located at the intersection of State Highway 146 and Farm to Market Road 519 in Texas City; OU No. 2 refers to the Amoco property (also known as Parcel H of the Tex Tin Site), a 27.23 acre parcel of land located east of OU1. OU No. 4 refers to the Swan Lake ecosystem located between the hurricane levee and the shell barrier islands separating Swan Lake from Galveston Bay. OU4 includes Swan Lake, its associated salt marsh habitats, and the Wah Chang ditch east of Loop 197.

This Proposed Plan highlights key information in the RFR and the SRI report but is not a substitute for these reports or other documents contained in the Administrative Record for the Site. Other documents in the AR include the draft Baseline Human Health Risk Assessment (BHHRA) Report. EPA encourages the public to review those documents to obtain more information about the Tex Tin site and the Superfund activities that have been conducted. EPA also encourages the public to participate in the decision-making process for OU No. 3. The Administrative Record file is available at the following information repository locations:

Moore Memorial Public Library
1701 Ninth Avenue North
Texas City, Texas 77590
(409) 643-5979
Mon through Wed — 9:00 am to 9:00 pm
Thru and Fri — 9:00 am to 6:00 pm
Sat. — 10:00 am to 4:00 pm

U.S. Environmental Protection Agency
7th Floor, 1445 Ross Avenue
Dallas, Texas 75202-2733
(214) 665-6617
M through F — 7:30 am to 4:30 pm

Texas Natural Resource Conservation Commission
Building D, Record Management, Room 190
12100 Park 35 Circle
Austin, Texas 78753
(512) 239-2920
M through F — 8:00 am to 5:00 pm

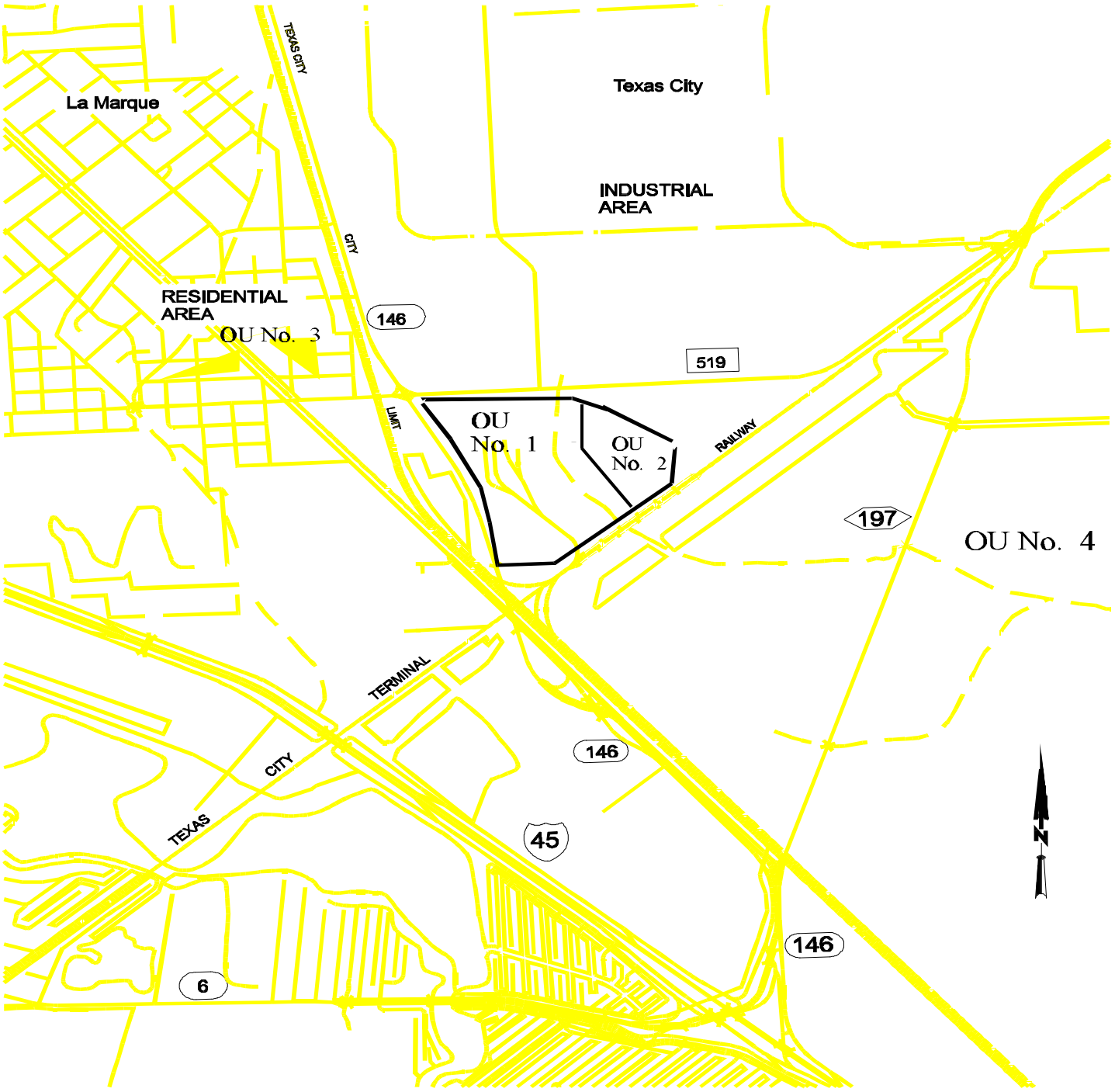
SITE HISTORY

The Tex Tin Corporation Superfund Site encompasses four operable units in Texas City and La Marque, Texas (Figure 1). The former smelter facility is located approximately 10 miles north of Galveston, in the southeast quadrant of the intersection of Farm-to-Market Road 519 and State Highway 146. The city of La Marque lies 2,000 feet to the west and northwest of the former tin and copper smelting facility. More than 10,000 people reside within a 1 mile radius of the Site. The area north and east of the site are dominated by large petrochemical facilities. A municipal golf course, an industrial waste disposal facility, and marsh areas are located less than 0.5 mile to the south and southwest of the Site. The southern boundary and a portion of the western boundary of the Site are fenced with a 3-strand barbed wire fence of questionable integrity. The remainder of the fence surrounding the Site is a 7-foot chain link fence in varying stages of deterioration. Tex Tin Corporation has provided 24-hour security at the facility since it was closed in 1991.

This Proposed Plan addresses the residential properties located in the city of LaMarque, OU No. 3 of the Tex Tin site (Figure 2). The LaMarque residential area that was the focus of the investigation and removal action is shown on Figure 2.

The tin smelter (OU No. 1) at Texas City was constructed by the United States government as a World War II emergency tin supply plant, and operated under a government contract from 1941 to 1956. In 1957 the property was purchased from the U.S. government and was owned and operated by a succession of private companies until it ceased operations in 1991. Tex Tin Corporation, the current owner, is in bankruptcy.

Descriptions of the facility's operations, emissions control and analysis, permit, and compliance history indicate that arsenic was released from the Tex Tin smelter as part of emissions vented through the main stack and as part of particulate and fugitive emissions leaving the buildings associated with the roasting and smelting processes and the stacks of the electrostatic precipitators.



SITE VICINITY MAP

Tex Tin Corporation Superfund Site
FIGURE 1

38923F20.CDR

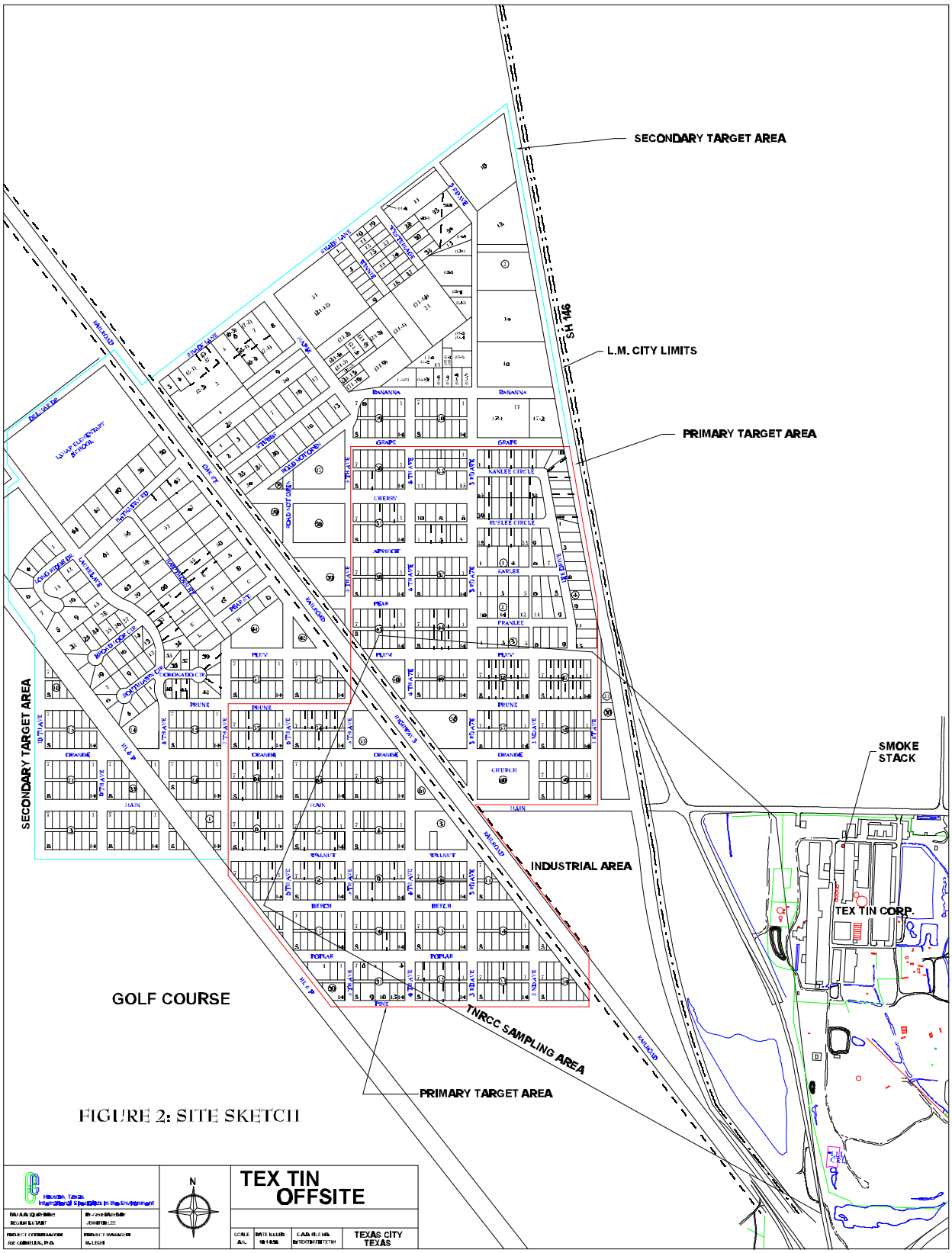


FIGURE 2: SITE SKETCH

SITE CHARACTERISTICS

From February 7 through 11, 1994, the TNRCC Superfund Site Discovery and Assessment Team conducted sampling activities in the residential areas located west-northwest of the Tex Tin smelter facility. Thirty four (34) soil samples were collected from residential and/or commercial properties in the area. All residential and/or commercial soil sampling locations were identified through X-Ray Fluorescence (XRF) field screening samples. Samples were analyzed for Target Analyte List (TAL) inorganics. TNRCC determined that residential properties in the LaMarque area had concentrations of arsenic three times greater than the background concentration of 5.7 mg/kg or parts per million (ppm). Based on its initial findings, TNRCC requested that EPA conduct a comprehensive assessment of the residential properties located near the Tex Tin site to determine the nature and extent of contamination.

In October, 1994, air dispersion modeling to estimate the potential extent of historical aerial emission impacts from the Tex Tin stack was completed by the EPA Region VI Technical Assistance Team. According to the modeling study estimates, the majority of arsenic deposition is predicted to have occurred within a one-mile radius of the stack, with most deposition occurring to the north, north-west, west and south of the stack.

A comprehensive sampling assessment was performed by the Superfund Technical Assessment and Response Team (START) on behalf of EPA from November 1994 to January 1995, to characterize the nature and extent of arsenic and other priority pollutant metal contamination within properties adjacent to the OU No. 1 smelter facility. Five hundred-twenty five (525) composite soil samples were collected from a depth of 0 to 6 inches from 253 properties within the target area and screened for priority pollutant metals. The target area was determined from air modeling results. Analytical results from the sampling effort in each residential yard were provided individually to the resident of that property.

EPA and the Agency for Toxic Substances and Disease Registry (ATSDR) in June of 1995 provided the results of residential samples ranging from 19.7 to 30.4 ppm arsenic to the Texas Department of Health (TDH). TDH was asked to evaluate potential health risks to residents associated with arsenic in soil. In a Health Consultation issued on October 2, 1995, TDH concluded that exposure of children to contaminated soil was not expected to result in adverse health effects, noting that exposure was minimized by additional protection from the extensive grass cover in the neighborhood. Based on the Health Consultation, EPA concluded that a removal action in the residential area was not immediately necessary, and that the area should continue to be evaluated along with the rest of the Site.

In June of 1996, EPA published a notice of proposed rulemaking proposing to place the Tex Tin Site on the National Priorities List; 61 Fed. Reg. 30575 (June 17, 1996). Between 1996 and 1998, EPA continued to conduct the site-specific studies required by the NCP, including a Supplemental Remedial Investigation, a Baseline Human Health Risk Assessment, an Ecological Risk Assessment, and a Feasibility Study. Under a Cooperative Agreement with EPA, TNRCC provided review and technical assistance throughout the site investigation process.

Results of the Draft Baseline Human Health Risk Assessment (BHHRA) for the Tex Tin Site, completed in March, 1997, are discussed in detail below. The Draft BHHRA did not identify any excess cancer risk associated with contaminants found in the residential neighborhood. The non-cancer hazard index, however, was found to exceed the regulatory benchmark of one.

RESIDENTIAL SAMPLING RESULTS

Property ID	Sample 1	Arsenic	Sample 2	Arsenic	Sample 3	Arsenic	Sample 4	Arsenic
R196009	Frontyard	5.9	Backyard	8.5	NA	NA	NA	NA
R196010	Frontyard	14.0	Backyard	12.4	NA	NA	NA	NA
R196012	East	11.2	West	10.5	NA	NA	NA	NA
R196014	Frontyard	12.2	Backyard	9.8	NA	NA	NA	NA
R196015	Vacant Lot	4.2	NA	NA	NA	NA	NA	NA
R196016	Frontyard	15.7	Backyard	2.2	NA	NA	NA	NA
R196018	Frontyard	14.8	Backyard	18.3	NA	NA	NA	NA
R196020	Frontyard	2.2	Backyard	7.7	NA	NA	NA	NA
R196021	Frontyard	10.6	Backyard	15.4	NA	NA	NA	NA
R196022	Frontyard	7.4	Backyard	15.3	NA	NA	NA	NA
R196023	Frontyard	6.0	Backyard	7.3	NA	NA	NA	NA
R196026	Frontyard	8.0	Backyard	8.8	NA	NA	NA	NA
R196027	Frontyard	6.1	Backyard	7.4	NA	NA	NA	NA
R196028	Frontyard	8.1	Backyard	8.9	NA	NA	NA	NA
R196029	Frontyard	5.6	Backyard	5.9	NA	NA	NA	NA
R196030	Frontyard	10.0	Backyard	6.9	NA	NA	NA	NA
R196031	Frontyard	5.5	Backyard	4.5	NA	NA	NA	NA
R196032	Frontyard	6.0	Backyard	7.2	NA	NA	NA	NA
R196033	Frontyard	6.7	Backyard	7.1	NA	NA	NA	NA
R196034	Frontyard	10.4	Backyard	9.4	NA	NA	NA	NA
R196035	Frontyard	15.5	Backyard	14.7	NA	NA	NA	NA
R196036	Frontyard	11.2	Backyard	15.0	NA	NA	NA	NA
R196037	Frontyard	14.5	NA	NA	NA	NA	NA	NA
R196038	Frontyard	12.3	Backyard	9.4	NA	NA	NA	NA

Property ID	Sample 1	Arsenic	Sample 2	Arsenic	Sample 3	Arsenic	Sample 4	Arsenic
R196039	Frontyard	16.1	Backyard	16.6	NA	NA	NA	NA
R196040	Vacant Lot	7.3	NA	NA	NA	NA	NA	NA
R196043	Frontyard	4.4	Backyard	8.9	NA	NA	NA	NA
R196044	Frontyard	6.2	Backyard	10.2	NA	NA	NA	NA
R196046	Frontyard	10.3	Backyard	6.8	NA	NA	NA	NA
R196047	Vacant Lot	8.6	NA	NA	NA	NA	NA	NA
R196050	Frontyard	13.2	Backyard	16.1	NA	NA	NA	NA
R196051	Frontyard	9.7	Backyard	6.2	NA	NA	NA	NA
R196057	Frontyard	11.1	Backyard	11.7	NA	NA	NA	NA
R196058	Frontyard	6.0	NA	NA	NA	NA	NA	NA
R196060	Frontyard	8.4	Backyard	5.5	NA	NA	NA	NA
R196062	Frontyard	10.4	Backyard	10.6	NA	NA	NA	NA
R196063	Frontyard	10.3	Backyard	13.8	NA	NA	NA	NA
R196065	Vacant Lot	6.7	NA	NA	NA	NA	NA	NA
R196066	Frontyard	12.8	Backyard	14.2	NA	NA	NA	NA
R196066	Frontyard	5.6	Backyard	14.2	NA	NA	NA	NA
R196067	Frontyard	5.8	Backyard	3.0	NA	NA	NA	NA
R196068	Frontyard	7.1	Backyard	5.3	NA	NA	NA	NA
R196070	Frontyard	8.3	Backyard	7.9	NA	NA	NA	NA
R196071	**Frontyard**	**21.0**	**Backyard**	**20.8**	NA	NA	NA	NA
R196072	Frontyard	17.2	Backyard	19.8	NA	NA	NA	NA
R196073	Frontyard	18.1	Backyard	9.9	NA	NA	NA	NA
R196074	**Frontyard**	**20.7**	Backyard	14.6	NA	NA	NA	NA
R196075	Frontyard	14.5	Backyard	13.4	NA	NA	NA	NA
R196076	Frontyard	18.5	Backyard	16.1	Garden	13.9	NA	NA
R196077	**Frontyard**	**23.4**	Backyard	11.2	NA	NA	NA	NA
R196078	**Frontyard**	**21.8**	Backyard	16.4	NA	NA	NA	NA
R196079	Frontyard	18.1	Backyard	9.1	NA	NA	NA	NA
R196080	Frontyard	12.1	Backyard	10.0	NA	NA	NA	NA
R196081	**Frontyard**	**20.2**	Backyard	15.5	NA	NA	NA	NA

Property ID	Sample 1	Arsenic	Sample 2	Arsenic	Sample 3	Arsenic	Sample 4	Arsenic
R196082	Frontyard	14.2	**Backyard**	**20.2**	NA	NA	NA	NA
R196083	Frontyard	16.3	Backyard	13.5	NA	NA	NA	NA
R196084	Frontyard	17.5	Backyard	14.1	NA	NA	NA	NA
R196085	Frontyard	19.7	**Backyard**	**24.4**	NA	NA	NA	NA
R196086	Frontyard	12.6	Backyard	12.7	NA	NA	NA	NA
R196087	Frontyard	14.2	Backyard	7.5	NA	NA	NA	NA
R196088	Frontyard	12.9	Backyard	12.9	NA	NA	NA	NA
R196089	Frontyard	13.3	Backyard	9.1	NA	NA	NA	NA
R196090	Frontyard	13.2	Backyard	16.9	NA	NA	NA	NA
R196091	Frontyard	12.4	Backyard	12.8	NA	NA	NA	NA
R196092	Frontyard	14.5	Backyard	12.2	NA	NA	NA	NA
R196093	Frontyard	10.2	Backyard	8.9	NA	NA	NA	NA
R196094	Frontyard	15.1	Backyard	11.7	NA	NA	NA	NA
R196095	West	7.0	East	6.8	South	6.7	NA	NA
R196096	Frontyard	10.3	Backyard	13.1	South	16.3	NA	NA
R196100	Frontyard	11.7	Backyard	12.5	East	13.2	NA	NA
R196101	Frontyard	4.4	Backyard	6.5	NA	NA	NA	NA
R196102	Frontyard	12.4	Backyard	13.6	NA	NA	NA	NA
R196103	Frontyard	4.3	Backyard	4.7	NA	NA	NA	NA
R196104	Frontyard	15.2	Backyard	14.5	NA	NA	NA	NA
R196105	Frontyard	10.9	Backyard	15.3	NA	NA	NA	NA
R196107	Frontyard	4.0	Backyard	4.5	NA	NA	NA	NA
R196108	Vacant Lot	7.7	NA	NA	NA	NA	NA	NA
R196110	Frontyard	11.8	Backyard	13.8	NA	NA	NA	NA
R196111	Frontyard	15.4	Backyard	11.5	NA	NA	NA	NA
R196112	Frontyard	9.5	Backyard	7.8	NA	NA	NA	NA
R196113	Vacant Lot	4.1	NA	NA	NA	NA	NA	NA
R196115	North	6.7	South East	14.7	South West	8.3	NA	NA
R196117	Frontyard	15.4	Backyard	11.9	NA	NA	NA	NA

Property ID	Sample 1	Arsenic	Sample 2	Arsenic	Sample 3	Arsenic	Sample 4	Arsenic
R196118	Frontyard	16.7	Backyard	14.1	NA	NA	NA	NA
R196122	Frontyard	15.4	Backyard	14.7	NA	NA	NA	NA
R196124	Frontyard	10.3	Backyard	14.8	NA	NA	NA	NA
R196125	Frontyard	16.0	Backyard	14.2	NA	NA	NA	NA
R196126	Frontyard	12.3	Backyard	8.6	NA	NA	NA	NA
R196129	**Central**	**20.4**	West	17.7	East	16.2	NA	NA
R196130	Vacant Lot	9.7	NA	NA	NA	NA	NA	NA
R196133	Frontyard	5.3	Backyard	14.9	NA	NA	NA	NA
R196134	Frontyard	1.2	Backyard	10.8	NA	NA	NA	NA
R196135	Frontyard	3.0	Backyard	7.8	NA	NA	NA	NA
R196136	Frontyard	4.4	Backyard	6.5	NA	NA	NA	NA
R196137	Vacant Lot	10.6	NA	NA	NA	NA	NA	NA
R196141	Frontyard	13.0	Backyard	13.9	South	15.4	North	8.8
R196145	Frontyard	11.8	Backyard	7.2	Garden	9.2	NA	NA
R196147	Frontyard	12.6	Backyard	12.6	NA	NA	NA	NA
R196148	Frontyard	9.5	Backyard	14.5	Garden	12.0	NA	NA
R196149	Frontyard	12.3	Backyard	9.8	Garden	12.6	NA	NA
R196150	Frontyard	9.0	Backyard	12.0	NA	NA	NA	NA
R196151	Frontyard	9.8	Backyard	5.9	NA	NA	NA	NA
R196152	Frontyard	5.5	Backyard	5.8	NA	NA	NA	NA
R196154	Frontyard	10.4	Backyard	7.6	NA	NA	NA	NA
R196175	North	11.0	East	7.6	West	8.8	NA	NA
R196178	Vacant Lot	9.8	NA	NA	NA	NA	NA	NA
R196179	Frontyard	7.9	Backyard	7.4	NA	NA	NA	NA
R196181	Frontyard	15.7	Backyard	13.5	NA	NA	NA	NA
R196182	Frontyard	6.3	Backyard	9.0	NA	NA	NA	NA
R196184	Frontyard	9.5	Backyard	8.1	Garden	6.0	NA	NA
R196186	Frontyard	13.3	NA	NA	NA	NA	NA	NA
R196187	Frontyard	10.2	Backyard	16.8	NA	NA	NA	NA
R196188	Frontyard	18.8	Backyard	14.2	West	12.7	East	7.8

Property ID	Sample 1	Arsenic	Sample 2	Arsenic	Sample 3	Arsenic	Sample 4	Arsenic
R196191	Frontyard	3.9	Backyard	2.5	NA	NA	NA	NA
R196192	Frontyard	12.0	Backyard	8.2	NA	NA	NA	NA
R196195	Frontyard	13.2	Backyard	12.0	NA	NA	NA	NA
R196196	Frontyard	8.0	NA	NA	NA	NA	NA	NA
R196197	Frontyard	7.3	Backyard	7.5	NA	NA	NA	NA
R196198	Frontyard	10.1	NA	NA	NA	NA	NA	NA
R196200	Frontyard	8.9	Backyard	8.1	West	2.8	NA	NA
R196202	Frontyard	16.2	Backyard	8.4	NA	NA	NA	NA
R196207	Frontyard	12.8	Backyard	13.8	NA	NA	NA	NA
R196208	Frontyard	11.7	Backyard	16.9	NA	NA	NA	NA
R196209	Frontyard	9.9	Backyard	5.3	NA	NA	NA	NA
R196211	Frontyard	7.7	Backyard	4.2	NA	NA	NA	NA
R196212	Frontyard	9.9	Backyard	13.1	NA	NA	NA	NA
R196215	Frontyard	12.7	Backyard	13.4	NA	NA	NA	NA
R196216	Frontyard	5.4	Backyard	3.9	NA	NA	NA	NA
R196217	Frontyard	9.9	Backyard	11.5	NA	NA	NA	NA
R196219	Frontyard	11.3	Backyard	5.6	NA	NA	NA	NA
R196220	Frontyard	5.5	Backyard	11.6	Garden 1	11.2	Garden 2	5.4
R196221	Frontyard	5.7	Backyard	8.4	Garden	7.4	NA	NA
R196223	Frontyard	10.2	Backyard	8.4	NA	NA	NA	NA
R196224	Frontyard	7.1	Backyard	5.4	NA	NA	NA	NA
R196225	Frontyard	5.3	Backyard	7.9	NA	NA	NA	NA
R196226	Frontyard	4.1	Backyard	6.1	NA	NA	NA	NA
R196227	Frontyard	9.7	Backyard	4.6	NA	NA	NA	NA
R196228	**North East**	**25.5**	South East	8.2	South West	6.1	North West	4.6
R196230	West	11.3	South East	7.7	NA	NA	NA	NA
R196232	West	10.3	Central	9.6	East	9.2	NA	NA
R196233	Section A	7.8	Section B	12.1	Section C	9.2	NA	NA
R196237	Frontyard	17.2	Backyard	12.3	NA	NA	NA	NA
R196239	Section C	11.8	Section B	15.6	NA	NA	NA	NA

Property ID	Sample 1	Arsenic	Sample 2	Arsenic	Sample 3	Arsenic	Sample 4	Arsenic
R196239	Section A	8.4	Section B	15.6	Section C	11.8	NA	NA
R196240	Frontyard	10.9	Backyard	10.0	NA	NA	NA	NA
R196242	Vacant Lot	12.1	NA	NA	NA	NA	NA	NA
R196243	Frontyard	3.3	Backyard	7.3	NA	NA	NA	NA
R196244	Frontyard	3.9	Backyard	6.3	NA	NA	NA	NA
R196245	Frontyard	5.0	Backyard	11.9	NA	NA	NA	NA
R196247	Frontyard	14.9	Backyard East	14.4	NA	NA	NA	NA
R196249	South	10.8	NA	NA	NA	NA	NA	NA
R196250	East	10.5	Central	10.1	West	11.3	NA	NA
R196250	Central	10.1	NA	NA	NA	NA	NA	NA
R196251	Frontyard	11.2	Backyard	9.4	NA	NA	NA	NA
R196252	Frontyard	12.5	Backyard	13.8	NA	NA	NA	NA
R196254	Frontyard	18.6	Backyard	17.0	NA	NA	NA	NA
R196257	Frontyard	11.3	Backyard	8.8	Garden	12.9	NA	NA
R196258	Frontyard	12.4	Backyard	9.1	NA	NA	NA	NA
R196259	Frontyard	8.2	Backyard	9.6	NA	NA	NA	NA
R196261	Frontyard	17.2	Backyard	12.3	NA	NA	NA	NA
R196264	Frontyard	14.8	West	15.2	NA	NA	NA	NA
R196266	North	11.4	South	8.9	NA	NA	NA	NA
R197800	East	11.7	West	9.5	NA	NA	NA	NA
R197801	East	8.4	West	8.8	Central	13.0	NA	NA
R198425	Frontyard	6.0	Backyard	5.6	NA	NA	NA	NA
R198426	Frontyard	11.1	Backyard	8.9	NA	NA	NA	NA
R198427	Frontyard	10.2	Backyard	11.2	NA	NA	NA	NA
R198428	Frontyard	10.6	Backyard	15.1	NA	NA	NA	NA
R198429	Frontyard	6.6	Backyard	12.5	NA	NA	NA	NA
R198430	Frontyard	9.2	Backyard	13.1	NA	NA	NA	NA
R198431	Frontyard	14.0	Backyard	14.8	NA	NA	NA	NA
R198432	Frontyard	9.5	Backyard	8.8	Garden	12.2	Garden	8.6
R198433	**Frontyard**	**21.9**	Backyard	16.8	NA	NA	NA	NA

Property ID	Sample 1	Arsenic	Sample 2	Arsenic	Sample 3	Arsenic	Sample 4	Arsenic
R198434	Frontyard	7.2	Backyard	6.3	NA	NA	NA	NA
R198435	Frontyard	14.1	Backyard	13.3	NA	NA	NA	NA
R198436	**Frontyard**	**21.4**	Backyard	13.0	NA	NA	NA	NA
R198437	Frontyard	9.8	Backyard	13.0	NA	NA	NA	NA
R198438	Frontyard	17.8	Backyard	14.7	NA	NA	NA	NA
R198439	Frontyard	8.6	Backyard	8.0	NA	NA	NA	NA
R198440	Frontyard	12.3	Backyard	7.7	NA	NA	NA	NA
R198441	Frontyard	8.4	Backyard	11.4	NA	NA	NA	NA
R198442	Frontyard	13.0	Backyard	11.3	NA	NA	NA	NA
R198443	Frontyard	13.2	Backyard	13.7	NA	NA	NA	NA
R198444	Frontyard	18.7	NA	NA	NA	NA	NA	NA
R198445	**Frontyard**	**22.7**	Backyard	16.1	NA	NA	NA	NA
R198446	Frontyard	17.9	Backyard	19.6	NA	NA	NA	NA
R198447	Frontyard	13.7	Backyard	17.2	NA	NA	NA	NA
R198448	Frontyard	18.9	Backyard	16.5	NA	NA	NA	NA
R198449	Frontyard	11.1	Backyard	10.9	NA	NA	NA	NA
R198450	Frontyard	11.3	Backyard	7.9	NA	NA	NA	NA
R198451	Frontyard	10.3	Backyard	12.4	NA	NA	NA	NA
R198452	**Frontyard**	**20.6**	Backyard	11.6	NA	NA	NA	NA
R198453	**Frontyard**	**20.0**	Backyard	15.3	NA	NA	NA	NA
R198454	Frontyard	8.4	Backyard	9.8	NA	NA	NA	NA
R198455	**Frontyard**	**30.4**	Backyard	16.0	NA	NA	NA	NA
R198456	**Vacant Lot**	**20.8**	NA	NA	NA	NA	NA	NA
R198457	**Frontyard**	**24.7**	Backyard	16.8	NA	NA	NA	NA
R198458	Frontyard	14.2	Backyard	19.2	NA	NA	NA	NA
R198459	Frontyard	14.8	Backyard	10.4	Garden	8.9	NA	NA
R198461	Frontyard	11.3	Backyard	12.1	NA	NA	NA	NA
R198463	Frontyard	7.6	Backyard	9.8	NA	NA	NA	NA
R198464	Frontyard	14.7	Backyard	13.9	NA	NA	NA	NA
R198465	Frontyard	17.2	Backyard	12.0	NA	NA	NA	NA

Property ID	Sample 1	Arsenic	Sample 2	Arsenic	Sample 3	Arsenic	Sample 4	Arsenic
R198466	**Frontyard**	**24.4**	Backyard	12.7	NA	NA	NA	NA
R198467	Frontyard	6.1	Backyard	12.6	NA	NA	NA	NA
R198468	Frontyard	16.1	Backyard	17.8	NA	NA	NA	NA
R198469	Frontyard	9.3	Backyard	10.6	NA	NA	NA	NA
R198470	Frontyard	8.2	Backyard	8.7	NA	NA	NA	NA
R198471	**Frontyard**	**20.9**	Backyard	19.9	NA	NA	NA	NA
R198472	Frontyard	12.3	Backyard	13.9	NA	NA	NA	NA
R198473	Frontyard	10.2	Backyard	8.2	NA	NA	NA	NA
R198474	Frontyard	9.6	Backyard	10.6	NA	NA	NA	NA
R198475	**Frontyard**	**21.3**	**Backyard**	**20.8**	NA	NA	NA	NA
R198476	Frontyard	2.0	Backyard	9.8	NA	NA	NA	NA
R198477	Frontyard	11.7	Backyard	9.4	NA	NA	NA	NA
R198478	Frontyard	6.5	Backyard	4.1	NA	NA	NA	NA
R198479	Frontyard	13.3	**Backyard**	**20.5**	NA	NA	NA	NA
R198480	Frontyard	16.3	Backyard	12.8	NA	NA	NA	NA
R198481	Frontyard	15.8	Backyard	17.1	NA	NA	NA	NA
R198483	Frontyard	8.8	Backyard	14.3	NA	NA	NA	NA
R198484	Frontyard	6.9	Backyard	9.1	NA	NA	NA	NA
R198485	Frontyard	11.4	Backyard	11.8	NA	NA	NA	NA
R198486	**Frontyard**	**24.3**	**Backyard**	**22.1**	NA	NA	NA	NA
R198487	Frontyard	7.5	Backyard	14.8	NA	NA	NA	NA
R198488	Frontyard	13.8	Backyard	15.1	NA	NA	NA	NA
R198489	Frontyard	13.3	NA	NA	NA	NA	NA	NA
R198490	Frontyard	9.7	Backyard	14.3	NA	NA	NA	NA
R198491	Frontyard	11.8	Backyard	10.4	NA	NA	NA	NA
R198492	Frontyard	11.5	Backyard	14.8	NA	NA	NA	NA
R198493	Frontyard	12.2	Backyard	18.0	NA	NA	NA	NA
R198494	Frontyard	17.5	Backyard	19.7	NA	NA	NA	NA
R198495	Frontyard	9.3	Backyard	7.8	Garden	10.4	NA	NA
R198496	Frontyard	12.2	Backyard	16.4	NA	NA	NA	NA

Property ID	Sample 1	Arsenic	Sample 2	Arsenic	Sample 3	Arsenic	Sample 4	Arsenic
R198497	Frontyard	18.6	**Backyard**	**26.7**	NA	NA	NA	NA
R198499	**Vacant Lot**	**21.0**	NA	NA	NA	NA	NA	NA
R198500	Frontyard	14.0	**Backyard**	**20.9**	NA	NA	NA	NA
R200207	Frontyard	7.8	Backyard	6.4	NA	NA	NA	NA
R200208	Frontyard	6.5	Backyard	6.7	NA	NA	NA	NA
R200209	Frontyard	8.9	Backyard	7.6	NA	NA	NA	NA
R200210	Frontyard	8.5	Backyard	7.3	NA	NA	NA	NA
R200212	Frontyard	9.3	Backyard	6.3	NA	NA	NA	NA
R200213	Frontyard	13.4	Backyard	9.9	NA	NA	NA	NA
R200214	Frontyard	6.9	Backyard	6.6	NA	NA	NA	NA
R200215	Frontyard	9.8	Backyard	12.6	NA	NA	NA	NA
R200216	Frontyard	11.4	Backyard	15.5	NA	NA	NA	NA
R200217	Frontyard	9.3	Backyard	6.8	NA	NA	NA	NA
R200218	**Frontyard**	**20.8**	Backyard	8.1	NA	NA	NA	NA
R200219	Frontyard	9.0	Backyard	8.0	NA	NA	NA	NA
R200220	Frontyard	13.8	Backyard	9.3	NA	NA	NA	NA
R200221	Frontyard	9.4	Backyard	11.2	NA	NA	NA	NA
R200222	Frontyard	10.7	Backyard	9.7	NA	NA	NA	NA
R291184	Vacant Lot	9.3	NA	NA	NA	NA	NA	NA
R358550	Frontyard	5.5	Backyard	8.5	NA	NA	NA	NA

SUMMARY OF SITE RISKS

The draft Baseline Human Health Risk Assessment (BHHRA) was completed in March 1997 for the Tex Tin smelter facility and included the residential properties in La Marque, Texas, located west, northwest from the site. The objective of the BHHRA is to assess current and future potential human health risks associated with site contaminants in the absence of any remedial actions.

A current residential scenario for children and adults was evaluated for the residential areas of La Marque, OU No. 3 of the Tex Tin site. For the current resident, data from soil from a depth interval of 0 to 6 inches were used to evaluate incidental ingestion of surface soil, dermal contact with surface soil, inhalation of particulates, and ingestion of homegrown produce.

WHAT IS RISK AND HOW IS IT CALCULATED

A Superfund human health risk assessment estimates the "baseline risk." This is an estimation of the likelihood of problems occurring if no cleanup action were taken at a site. To estimate the baseline risk at a Superfund site, EPA undertakes a four-step process:

Step 1: Analyze Contamination: Step 2: Estimate Exposure
Step 3: Assess Potential Health Dangers: Step 4: Characterize Site Risk

In Step 1, EPA looks at the concentrations of contaminants found at a site as well as past scientific studies on the effects these contaminants have had on people (or animals, when human studies are unavailable). Comparisons between site-specific concentrations and concentrations reported in past studies helps EPA to determine which contaminants are most likely to pose the greatest threat to human health.

In Step 2, EPA considers the different ways that people might be exposed to the contaminants identified in Step 1, the concentrations that people might be exposed to, and the potential frequency and duration of exposure. Using this information, EPA calculates a "reasonable maximum exposure" (RME) scenario, which portrays the highest level of human exposure that could reasonably be expected to occur.

In Step 3, EPA uses the information from Step 2 combined with information on the toxicity of each chemical to assess potential health risks. EPA considers two types of risk: cancer risk and non-cancer risk. To protect human health, EPA has set the range from one in ten thousand to one in one million lifetime excess cancer incidents as the acceptable exposure levels for Superfund sites. A risk of one in one million means that one person out of one million people could be expected to develop cancer as a result of a lifetime exposure to the Site contaminants. An extra cancer case means that one more person could get cancer than would normally be expected to from all other causes. For non-cancer health effects, EPA calculates a "hazard index." The key concept here is that a "threshold level" (measured usually as a hazard index of less than 1) exists below which non-cancer health effects are no longer predicted.

In Step 4, EPA determines whether site risks are great enough to cause health problems for people at or near the Superfund site. The results of the three previous are combined, evaluated and summarized. EPA adds up the potential risks from the individual contaminants and exposure pathways and calculates a total site risk.

Chemicals of potential concern (COPCs) were selected for each medium and evaluated in the BHHRA for OU No. 3 along with the rest of the Site. Exposure scenarios for chemical hazards were evaluated using standard EPA default exposure parameters for the central tendency exposure (CTE) and reasonable maximum exposure (RME) scenarios for residents. Site-specific exposure assumptions were developed for children and adults in a residential setting. Estimated lifetime excess cancer risks and Hazard Indices (HIs) for all COPCs, by area, are presented in the BHHRA. The contaminant representing the highest cancer risk for the site was arsenic. In some scenarios, arsenic represented as much as 94% of the cancer risk. Exposure to lead was evaluated separately from the other COPCs because toxicity values are not available for lead. The Integrated Exposure Uptake Biokinetic (IEUBK) Model was used to predict blood-lead effects for children up to 7 years old. The IEUBK Lead Cleanup Level Model showed predicted children's mean blood lead level of 3.1 µg/dL throughout OU No. 3 which is less than the Centers for Disease Control (CDC) and Prevention level of concern of 10 µg/dL.

HIs exceeding 1 for the media and exposure scenarios are also shown in the BHHRA. Major HI contributors included arsenic and beryllium. Arsenic contributed over 90% of the Hazard Index values.

Area/Scenario	**Total Hazard Index Excluding Dermal Contact**		**Total Hazard Index Including Dermal Contact**		**Total Cancer Risk Excluding Dermal Contact**		**Total Cancer Risk Including Dermal Contact**	
Residential Yards	RME	CTE	RME	CTE	RME	CTE	RME	CTE
(Prior to removal action)								
Current Adult	1.2	0.9	1.3	0.9	9.0E-05	2.3E-05	9.7E-05	2.3E-05
Current Child	2.6	2.0	2.8	2.0	--------	--------	---------	--------

Note:
RME - Reasonable Maximum Exposure (measure of high-end exposure)
CTE - Central Tendency Exposure (measure of average exposure)
Cancer risk is total lifetime risk based on exposure as a child and adult

Exposure Pathway Scenario	**Receptor**	**Chemical**	**Cancer Risk**	**Percent**	**Exposure Route**	**Cancer Risk**	**Percent**
Current (Prior to removal action) Residential Surface Soil	RME Current Resident	Inorganics			Incidental Ingestion of		
		Arsenic	8.5E-05	93.92	Surface Soil	5.3E-05	58.60
		Beryllium	5.5E-06	6.07			
					Homegrown Produce	3.7E-05	41.36

Exposure Pathway Scenario	Receptor	Chemical	Cancer Risk	Percent	Exposure Route	Cancer Risk	Percent
Current (Prior to removal action) Residential Surface Soil	CTE Current Resident	Inorganics			Incidental Ingestion of		
		Arsenic	2.1E-05	92.91	Surface Soil	1.7E-05	74.28
		Beryllium	1.6E-05	7.08			
					Homegrown Produce	5.9E-06	25.67

Note:
RME - Reasonable Maximum Exposure (measure of high-end exposure)
CTE - Central Tendency Exposure (measure of average exposure)
Cancer risk is total lifetime risk based on exposure as a child and adult

Exposure Pathway Scenario	Receptor	Chemical	Hazard Index	Percent	Exposure Route	Hazard Index	Percent
Current (Prior to removal action) Residential Surface Soil	RME Current Resident	Inorganics			Incidental Ingestion of		
		Arsenic	1.2	43.76	Surface Soil	1.3	51.05
					Homegrown Produce	1.3	41.36
Current (Prior to removal action) Residential Surface Soil	CTE Current Resident	Inorganics			Incidental Ingestion of		
		Arsenic	1.0	50.89	Surface Soil	1.3	67.54

Note:
RME - Reasonable Maximum Exposure (measure of high-end exposure)
CTE - Central Tendency Exposure (measure of average exposure)
Cancer risk is total lifetime risk based on exposure as a child and adult

Evaluation of Human Health Risks
Lead (Pb) Contamination

The Integrated Exposure Uptake Biokinetic (IEUBK) model for lead (Pb) in children was used to evaluate the risks posed to young children as a result of lead (Pb) contamination at this site. Because lead does not have a nationally approved reference dose (RfD), slope factor, or other accepted toxicological factor which can be used to assess risk, standard risk assessment methods cannot be used to evaluate the health risks associated with Pb contamination. The IEUBK model was run using site-specific data to predict children blood lead levels. The IEUBK Model predicted that exposure to site soils would result in a children's mean blood lead level of 3.1 µg/dL. The model predicted that less than 1% of the total child population ages 6 months to 7 years would have blood lead levels exceeding the level of concern of 10 µg/dL recommended by the Centers for Disease Control and Prevention.

SCOPE AND ROLE OF OPERABLE UNIT RESPONSE ACTION

As noted above, arsenic concentrations in the residential samples collected in 1995 ranged from 2.2 ppm to 30.2 ppm. Twenty-five (25) residential yards exceeded the removal action level of 20 ppm arsenic. This removal action level for arsenic has been used at other Superfund removal actions. TNRCC has adopted a policy standard (Memorandum dated May 19, 1995) of 20 ppm for cleanup of arsenic in residential areas based on soil exposure. The removal action cleanup level is within EPA's acceptable human health risk levels for a residential setting.

On September 9, 1998, EPA published a Proposed Plan of Action for the Tex Tin Corporation smelter property, OU No. 1. By letter dated September 11, 1998, TNRCC acknowledged that cleanup of the industrial property was very important, but requested that EPA conduct a soil removal action on the contaminated residential properties within OU No. 3 immediately. On September 28, 1998, EPA issued an Action Memorandum authorizing use of federal funds to conduct an emergency removal action on OU No. 3. The authorized removal action consisted of excavation of arsenic-contaminated soil and debris above the action level of 20 ppm in residential yards identified during the 1995 sampling event. Excavated areas were backfilled to grade with clean fill dirt and revegetated. The contaminated soil and debris excavated from the residential properties, which contained arsenic above the health-based levels for a residential exposure scenario, but well below acceptable industrial exposure levels, was originally to be stockpiled on the OU No. 1 facility for subsequent use during the OU No. 1 response action; however, EPA was unable to secure access from the OU No. 1 property owner for this purpose. Contaminated soil and debris were therefore shipped to an approved landfill secured by TNRCC in Galveston County, Texas.

Mobilization for the removal action was initiated in November, 1998, but delayed due to problems

associated with obtaining access to the OU No. 1 property. Field work was subsequently initiated in March, 1999 and concluded in June, 1999.

STATUTORY DETERMINATION: RECOMMENDED NO FURTHER REMEDIAL ACTION

The removal action as implemented is protective of human health and the environment. The removal action resulted in permanent removal of contaminants found above the removal action level at 24 of 25 residential properties. One home owner refused access for removal purposes. The elder resident did not want to be bothered with the requested cleanup. The arsenic concentration at this property is 20.9 ppm which is within EPA's acceptable health risk range and just slightly higher than the removal action level of 20 ppm. Residential properties were excavated to a depth of six (6) inches and backfilled with clean soil and grass cover was re-established. Contaminated soils were permanently removed from the residential properties through the removal action and disposed of offsite at a permitted landfill facility. Therefore, no further remedial action is necessary for the residential properties of La Marque, Texas, OU No. 3, to protect human health and the environment.

Because the removal action did not result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required for OU No. 3 of the Tex Tin site.

COMMUNITY PARTICIPATION

The public is invited to review and comment on the EPA's recommendation that no further action is necessary for protection of human health and the environment. Summary information regarding the no further action recommendation is included in this Proposed Plan. Additional information can be found in the Removal Action report which is included in the Administrative Record file for the Tex Tin Site, along with other pertinent reports and documents. The Administrative Record file is available for review at the document repositories listed on page 2 of this document.

The public comment period begins on July 19, 2000, and ends on August 17, 2000. During the public comment period, written comments may be submitted to:

Mr. Donn Walters
Community Relations Coordinator
U.S. EPA (6SF-P)
1445 Ross Avenue
Dallas, Texas 75202-2733

Additionally, oral comments will be accepted at a public meeting scheduled for August 3, 2000, beginning at 7:00 p.m., at the city council conference room, in La Marque, Texas. EPA will respond to all comments on the Proposed Plan received during the public comment period in a document called a **Responsiveness Summary**. The Responsiveness Summary will be attached to

the **Record of Decision** (ROD) for OU No. 3 and will be made available to the public in the information repositories. The ROD will present EPA's decision for OU No. 3 and will explain the rationale for the selected site decision based on public comments and comments received from the State. EPA's recommendation in this Proposed Plan could change depending upon new information which EPA may consider as a result of the public comments received. Any aspects of the proposed action that are significantly different from the Proposed Plan will be explained in the ROD.

FOR MORE INFORMATION

For more information about the public involvement process or if you have questions about activities at the Tex Tin site, OU No. 3, please contact:

Carlos A. Sanchez, Remedial Project Manager
U.S. EPA (6SF-AP)
1445 Ross Avenue
Dallas, Texas 75202-2733
(214) 665-8507

Luda Voskov, Project Manager
Texas Natural Resource
Conservation Commission
P.O. Box 13087
Austin, Texas 78711-3087
(512) 239-6368

Donn Walters,
Community Relations Coordinator
U.S. EPA (6SF-P)
(214) 665-6483 or 1-800-533-3508 (Toll Free)